3GPP TSG RAN WG2 Meeting #116-e R2-210xxxx

**Electronic meeting, 1st -12th November 2021**

**Agenda item:** 8.12.2.1

**Source:** Intel Corporation

**Title:** [Post116-e][110][RedCap] 38.306 running CR (Intel)

**Document for:**  Discussion and decision

# Introduction

This is the email discussion report for following email discussion:

* [Post116-e][110][RedCap] 38.306 running CR (Intel)

Scope: update the 38.306 running CR based on meeting agreements

Intended outcome: Endorsed running CR in R2-2111629

Deadline: Short (not for RP)

Short (One week) = Deadline Nov 19 1200 UTC

Rapporteur would like to split the discussion in two phases:

**Phase 1**: To check the proposals from Rapporteur and the draft TP; The **deadline for this 1st phase** of email discussion is **Thursday Nov 18 , 0900 UTC.**

**Phase 2**: To finalize the draft running CR; The **deadline for this 2nd phase** of email discussion is **Friday Nov 19 , 0900 UTC.**

# Annex: companies’ point of contact

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| **Company** | **Point of contact** | **Email address** |
| Intel Corporation | Yi Guo | Yi.guo@intel.com |
| Qualcomm | Linhai He | linhaihe@qti.qualcomm.com |
| Huawei, HiSilicon | Yulong Shi | Shiyulong5@huawei.com |
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# Phase 1the draft on how to capture meeting agreements

## Status on NCD-SSB, early identification, eDRX and RRM Relaxation

**NCD-SSB and early identification:**

For NCD-SSB, early identification, Rapporteur think RAN1 will provide their inputs as part of RAN1 feature lists, and therefore nothing needs to be captured in this email discussion;

**RRM relaxation and eDRX:**

For RRM relaxation, based on R2-2111355 [offline-111] RRM relaxation - second round, RAN2 discussed whether the RRM relaxation applies for both RedCap and non-RedCap UEs, but RAN2 did not meet any consensus. Further discussion is needed, and therefore nothing needs to be captured in this email discussion.

Proposal 2.2 (16/20, 11/15) RRM relaxation can be applied to non-RedCap UEs too. FFS Whether that can be configurable by network.

* Postponed

For eDRX, based on R2-2111350 [offline-105] eDRX cycles - second round, RAN2 agreed:

Agreements via email - from offline 105 (second round):

1. eDRX feature can be supported by non RedCap UEs.
2. A UE in idle mode requests eDRX configuration via NAS signalling. FFS if capability signalling in RAN, as part of the UE capability message, is also needed.
3. eDRX support is optional for the RedCap UE.

However it is still FFS on the capability as “FFS if capability signalling in RAN, as part of the UE capability message, is also needed.”. Further discussion is needed, and therefore nothing needs to be captured in this email discussion.

**Therefore Rapporteur did not capture NCD-SSB, early identification, eDRX and RRM-Relaxation in current draft of capability CRs.**

## Issues received in [Post115-e][108][RedCap] 38.306 Running CR (Intel)

The following issues were raised by company during email discussion Post115-e][108][RedCap] 38.306 Running CR (Intel):

### Issue #1 changes on *channelBWs-DL-v1590*

After further reviewing of the running CR, we have the following comments on ***channelBWs-DL/UL***:

*“channelBWs-DL-v1590* is not applicable to RedCap UEs”.

We think this statement is true for now but may not be necessary. First, it is redundant since we already have the first sentence on RedCap’s max UE bandwidth. Second, new bandwidth below 20MHz could be added in the future (which can be as early as next quarter), and channelBWs-DL-v1590 has spare values for them. When that happens, we will need to change the text for RedCap.

**[Rapp]** tend to agree with the comments that it will cause additional change whenever new *channelBWs* are introduced, and the rest text should be sufficient.

**Discussion point 1: Companies are invited to provide your view on whether the TP related to** *channelBWs-DL-v1590* **should be removed. I.e. To remove the following TP *“. channelBWs-DL-v1590 is not applicable to RedCap UEs. .”* from TS38.306 running CR.**

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| **Company’s name** | **Agree or not** | **Comments, if any** |
| Qualcomm | Agree |  |
| Huawei, HiSilicon | Either way | Even though it is redundant, it is true that this field does not apply to RedCapp. We are fine either to keep or remove it. |
| Sequans | Agree, but | We are fine to go with majority.  To avoid any possible confusion the sentence can also be changed to a forward-compatible wording, *e.g.*, “all or some of the possible values of *channelBWs-DL-v1590* are applicable to RedCap UEs” |
| Ericsson | Agree | No strong view, but it should be clear this doesn’t apply to RedCap based on the max UE BW. |
| Samsung | Agree | Either is fine. We have chance to update it, if needed in future. |
| OPPO | Either way | We can also leave an EN to decide whether to keep it or not in the final phase. |
| MediaTek | Either way | No strong view on this. |
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**Summary:**

Companies either agree or no strong opinion on the suggestion from Rapporteur.

Therefore Rapporteur removed the changes on ***channelBWs-DL-v1590*** from Running CR.

### Issue #2 changes on 20Mhz/100Mhz limitation

For FR1 RedCap UE, the bit which indicates 20MHz shall be set to 1. For FR2 RedCap UE, the bit which indicates 100MHz shall be set to 1.

We think this sentence would make 20/100MHz mandatory for RedCap UEs in all bands. We assume the editor’s note below it covers the case where channel BW is <20/100MHz? If that is the case, we wonder if we should add restriction to the sentence above, e.g. For FR1, in bands which support channel bandwidth of 20MHz or higher, RedCap UE shall set the bit which indicates 20MHz to 1.

**[Rapp]** Ericsson raised same concern. So far I added EN on this. Companies are invited to provide good idea on how to address this.

To address this issue, Rapporteur suggests to change the wording as

*RedCap Ues shall the maximum channel bandwidth defined for the respective band up to 20 MHz for FR1 and up to 100 Mhz for FR2. ChannelBWs-DL-v1590 is not applicable to RedCap Ues. For FR1 RedCap UE, the bit which indicates 20MHz shall be set to 1 if 20MHz is supported for the respective band as defined in TS38.101-1 [2]. For FR2 RedCap UE, the bit which indicates 100MHz shall be set to 1 if 100MHz is supported for the respective band as defined in TS38.101-1 [2].*

~~Editor’s Note: FFS on how to handle the case that the UE cannot support 20MHz BW as specified in TS38.101.~~

**Discussion point 2: Do companies agree with the suggested TP on how to capture the maximum BW ,i.e. “***RedCap Ues shall the maximum channel bandwidth defined for the respective band up to 20 MHz for FR1 and up to 100 Mhz for FR2. ChannelBWs-DL-v1590 is not applicable to RedCap Ues. For FR1 RedCap UE, the bit which indicates 20MHz shall be set to 1 if 20MHz is supported for the respective band as defined in TS38.101-1 [2]. For FR2 RedCap UE, the bit which indicates 100MHz shall be set to 1 if 100MHz is supported for the respective band as defined in TS38.101-1 [2].*

~~Editor’s Note: FFS on how to handle the case that the UE cannot support 20MHz BW as specified in TS38.101. “~~

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| **Company’s name** | **Agree or not** | **Comments, if any** |
| Qualcomm | Agree | We suggest a minor change: “if UE channel bandwidth of 20MHz is supported for the respective band …”  By the way, it seems the work “support” is missing from the first sentence, i.e.  “RedCap Ues shall support the maximum channel bandwidth defined for the respective band up to 20 MHz for FR1 and up to 100 Mhz for FR2.” |
| Huawei, HiSilicon | Yes, but | The intention is correct. We suggest to use below wording to make it simple:  For FR1 RedCap UE, the bit which indicates 20MHz shall be set to 1, according to TS 38.101-1 [2] and TS 38.101-2 [3]. For FR2 RedCap UE, the bit which indicates 100MHz shall be set to 1, according to TS 38.101-1 [2] and TS 38.101-2 [3]. |
| Sequans | Agree | Prefer original wording by rapporteur.  “support” is missing at the start of the sentence as suggested by QC.  The second reference should be changed to TS 38.101-2 |
| Ericsson | Agree with comments | We are OK with Qualcomm suggestions on wording.  Related to HW suggestion, FR2 is defined in TS 38.101-2 so the second reference should be corrected. The first one is fine. |
| Samsung | Agree | Fine with rapporteur’s text. |
| OPPO | Agree | Fine with rapporteur's text and “support” is missing in the first sentence. |
| MediaTek | Agree | Fine with the rapporteur’s text with the addition of ‘support’, and with the change of FR2 reference to 38.101-2 |
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**Summary:**

6 companies agreed the text from Rapporteur, but identified the error ,e.g. “support” is missing, and reference on FR2 should be 38.101-2. Ericsson and QC would like to add “UE channel bandwidth of”

Rapporteur updated the CR accordingly.

## Others

**Discussion point 3: Companies are invited to provide your comments on the changes shown in the running CRs (R2-2109667 and R2-2109668), and if any additional agreements need to be captured.**

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| **Company’s name** | **Section, fields** | **Comments, if any** |
| Qualcomm |  | Mhz should be MHz  [Rapp] Updated. |
| Huawei, Qualcomm |  | maximum bandwidth should be maximum channel bandwidth  [Rapp] Updated. |
| Huawei |  | for the fields “supportedBandwidthDL” and “supportedBandwidthUL”, the highlighted sentence should NOT be added and just removing the EN is OK. This is because the capabilities are per CC, which have no restriction on a certain band.  [Rapp]I think the condition still need to be added although it is per CC fields since it will be linked to band.  For the fields of “supportedBandwidthDL” and “supportedBandwidthUL”, we still think the added condition is not needed.  The legacy design allows UE to report supportedBandwidthDL wider than channelBWs-DL and not restricted by the one defined for a certain band in 38.101 (see the highlight below). This also applies to RedCap.   | ***supportedBandwidthDL***  Indicates maximum DL channel bandwidth supported for a given SCS that UE supports within a single CC (and in case of intra-frequency DAPS handover for the source and target cells), which is defined in Table 5.3.5-1 in TS 38.101-1 [2] for FR1 and Table 5.3.5-1 in TS 38.101-2 [3] for FR2.  For FR1, all the bandwidths listed in TS38.101-1 Table 5.3.5-1 for each band shall be mandatory with a single CC unless indicated optional. For FR2, the set of mandatory CBW is 50, 100, 200 MHz. When this field is included in a band combination with a single band entry and a single CC entry (i.e. non-CA band combination), the UE shall indicate the maximum channel bandwidth for the band according to TS 38.101-1 [2] and TS 38.101-2 [3].  The UE may report a *supportedBandwidthDL* wider than the *channelBWs-DL*; this *supportedBandwidthDL* may not be included in the Table 5.3.5-1 of TS 38.101-1[2]/TS 38.101-2[3] for the case that the UE is unable to report the actual supported bandwidth according to the Table 5.3.5-1 of TS 38.101-1[2]/TS 38.101-2[3].  NOTE:       To determine whether the UE supports a channel bandwidth of 90 MHz, the network may ignore this capability and validate instead the *channelBW-90mhz*, the *supportedBandwidthCombinationSet* and the *supportedBandwidthCombinationSetIntraENDC*. For serving cell(s) with other channel bandwidths the network validates the *channelBWs-DL*, the *supportedBandwidthCombinationSet*, the *supportedBandwidthCombinationSetIntraENDC*, the *asymmetricBandwidthCombinationSet* (for a band supporting asymmetric channel bandwidth as defined in clause 5.3.6 of TS 38.101-1 [2]) and *supportedBandwidthDL*. | FSPC | CY | N/A | N/A | | --- | --- | --- | --- | --- |   [Rapp1]Thanks for the clarification. Then will remove the condition. |
| ZTE |  | In fact, supportedBandwidthDL/UL are defined as ENUMERATED type, not bit map.      So maybe you need to change the wording into:     "For FR1 RedCap UE, the field shall be set to mhz20. For FR2 RedCap UE, the field shall be set to mhz100."  [Rapp] Agree. |

# Summary report and proposals

Aiming to help with the meeting discussion/progress, the proposals are categorized starting with:

* [To agree] when there is large support and hence proposed for easy agreement.
* [To discuss] when there is substantial level of support and agreement may be possible.
* [FFS] when there is low support or companies propose new solutions or options to possibly consider further e.g. if there is sufficient support (understanding that these topic have not been discussed by all companies when providing their views in the different discussion points).

The proposals also start with a number: for the format [x], ‘x’ represents the number of supportive companies (i.e. these solutions are marked as FFS as the proposed solutions were not discussed by all companies) and, for the format [x/y], ‘x’ represents the number of supportive companies, and (y-x) the number of companies with different view.

The observations captured are the following:

**Observation 1.** xxxx.

The proposals captured are the following:

**Proposal 1.** **[To agree]**

The following list shows the proposals above organized based on the suggested priority aiming to help during its meeting discussion:

**Proposals for easy agreement**

**Proposal 1.** **[To agree]**

**Proposals for discussion (1st priority) or to be captured as FFS**

**Proposal 6.** **[To discuss]**

**Proposals for discussion (2nd priority) or to be captured as FFS**

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# Reference

1. R2-2109667 Email discussion [108]Running 38.331 CR for the RedCap WI on capablities Intel Corporation
2. R2-2109668 Email discussion [108]Running 38.306 CR for the RedCap WI on capablities Intel Corporation